

Changes to Claims:

Please replace claims 1-15 as follows:

1. (Amended) A producing method of a photomask on which a pattern to be transferred through a projection optical system under a predetermined first condition is formed comprising:

forming a parent pattern obtained by enlarging the pattern on a first substrate, thereby forming a master mask, and

transferring the parent pattern of the master mask onto a second substrate through a reduction projection optical system under a second condition set in accordance with the first condition, thereby forming the photomask.

2. (Amended) A producing method of a photomask on which a pattern to be transferred through a projection optical system under a predetermined first illumination condition is formed, comprising:

forming a parent pattern obtained by enlarging the pattern on a first substrate, thereby forming a master mask, and

transferring the parent pattern of the master mask onto a second substrate through a reduction projection optical system under a second illumination condition set such as to compensate a variation in a projection image under the first illumination condition, thereby forming the photomask.

3. (Amended) A producing method of a photomask as recited in claim 2, wherein
- the first illumination condition is illumination having a coherence factor of equal to or more than 0.7 or circular zone plate illumination, and
- the second illumination condition is illumination having a coherence factor of equal to or less than 0.4 and equal to or more than 0.1.

4. (Amended) A producing method of a photomask as recited in claim 2, wherein
- the first illumination condition is illumination having a coherence factor of equal to or less than 0.4 and equal to or more than 0.1, and the second illumination condition is illumination having a coherence factor of equal to or more than 0.7 or circular zone plate illumination.

5. (Amended) A producing apparatus of a photomask on which a pattern to be transferred through a projection optical system under a predetermined first illumination condition is formed, comprising:

a mask stage which holds a master mask on which a parent pattern obtained by enlarging the pattern is formed;

an illumination optical system which illuminates a mask on the mask stage under any one of a plurality of illumination conditions;

a control system which sets a second illumination condition selected out of the plurality of illumination conditions so as to compensate a variation in a projection image caused under the first illumination condition to the illumination optical system; and

a reduction projection optical system which transfers an image of a pattern of a mask on the mask stage on a predetermined substrate.

6. (Amended) A producing method of a predetermined device, comprising:

forming a first pattern obtained by enlarging a pattern of a predetermined layer of the device α times (α is a real number greater than 1) and setting a first illumination condition when the first pattern is illuminated;

drawing a parent pattern obtained by enlarging the first pattern β times (β is a real number greater than 1) onto a single or a plurality of first substrates to form a master mask;

transferring an optical image obtained by reducing a pattern of the master mask $1/\beta$ times under a second illumination condition set such as to compensate a variation in a projection image by the first illumination condition, onto a second substrate to form a working mask; and

transferring an image obtained by reducing a pattern on the working mask $1/\alpha$ times under the first illumination condition onto the third substrate.

7. (Amended) A producing method of a photomask having a pattern to be transferred onto a light-sensitive substrate by an exposure apparatus used for producing a device, comprising:

disposing a master mask on which at least a portion of a parent pattern obtained by enlarging the pattern is to be formed at an object plane side of a projection optical system, illuminating the master mask under an illumination condition according to a proximity degree of the at least the portion of the parent pattern, and transferring a reduced image of the at least the portion of the parent pattern through the projection optical system onto a photomask-producing substrate disposed at an image plane side to produce the photomask.

8. (Amended) A producing method of a photomask as recited in claim 7, wherein the illumination condition is set such that the exposure apparatus and proximity effect are of opposite characteristics.

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9. (Amended) A producing method of a photomask as recited in claim 7, wherein the illumination condition is set such that at least one of a shape and a size of intensity distribution of the illumination light on a Fourier-transform plane with respect to a pattern plane of the master mask in an illumination optical system which illuminates the master mask with illumination light is brought into a predetermined state.

10. (Amended) A producing method of a photomask as recited in claim 7 wherein, the parent pattern is divided and formed in at least two regions, and reduced images of the at least the two regions are stitched and transferred onto the photomask-producing substrate.

11. (Amended) A producing apparatus of a photomask having a pattern to be transferred onto a light-sensitive substrate by an exposure apparatus used for producing a device, comprising:

an illumination optical system which illuminates a master mask on which at least a portion of a parent pattern obtained by enlarging the pattern;

a projection optical system which projects a reduced image of the master mask onto a photomask-producing substrate; and

an adjusting apparatus which sets an illumination condition of the master mask to the illumination optical system in accordance with proximity degree of the at least the portion of the parent pattern.

12. (Amended) A producing apparatus of a photomask as recited in claim 11, wherein the adjusting apparatus comprises an optical member which varies an intensity distribution of the illumination light on a Fourier-transform plane with respect to a pattern surface of the master mask in the illumination optical system.

13. (Amended) A photomask produced using the photomask producing method as recited in claim 1.

14. (Amended) A photomask produced using the photomask producing apparatus as recited in claim 5.

15. (Amended) A device produced using the device producing method as recited in claim 6.
